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**Docket Number FAA-2000-7952**  
**Service Difficulty Reports - Final Rule**

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**Industry Concerns**

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**Docket Number FAA-2000-7952**  
**Service Difficulty Reports - Final Rule**

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**Who is the Industry?**  
Part 121 Air Carriers  
Part 125 Air Carriers  
Part 135 Air Carriers  
Part 145 Repair Stations

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**Docket Number FAA-2000-7952**  
**Service Difficulty Reports - Final Rule**

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**Big Concerns**

- Confusion about what needs to be reported.
- Confusion about use of the JASC Code.
- Lack of guidance materials.

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Docket Number FAA-2000-7952  
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The language of the rule is too vague!

- "... shall report ... each failure, malfunction, or defect .  
..." That's every non-routine! Not just in flight.
- Under §121.703 (operational)
  - Routine scheduled maintenance non-routines?
  - All autothrottle, autoflight & flight control?
- Under §121.704 (structural)
  - Routine scheduled maintenance non-routines?
  - All corrosion, cracks or disbonding in non-composites?

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■ The typical "C" check alone can generate as many as 1000 non-routine entries; multiply that by the number of aircraft that go through "C" check each year (about 4500 for just ATA members), and the potential number of SDRs is staggering.

- this does not include lower or higher level checks, nor all the in-service entries!

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- As reported to you through our Comments ...
- Failing a clear understanding, our members have conservatively estimated that the number of original SDR reports will increase 30 to 50-fold!
- With the additional information required, we now estimate that the number of original "open" SDR reports that need to be tracked and "closed" will see a similar increase!

■ Is the FAA staffed to process this increase?

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The language must be more specific  
(examples were submitted with our Comments).

- Clearly define the scope.
  - uncommanded actuation
  - primary structure
  - not including results of routine scheduled mrx
- Eliminate duplicate reporting:
  - ADs & SBs,
  - ETOPS, SSID and CPCP inspections, and
  - approved repairs by designees, OEMs & ACOs.

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Using the JASC Code

- All air carrier maintenance personnel will have to receive training in both the JASC and the ATA Spec 100 code or maintenance support staff will have to translate the maintenance records into JASC.
- Computerized maintenance record programs will either have to be reprogrammed to accept the JASC codes or a stand-alone system will need to be created.
- The current JASC code (1996) will need revisions (ATSRAC input, new technology); we believe this will require new rulemaking at each revision!

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- Necessary training cannot be ready by the effective date.
- If the JASC code is not applied properly, the quality of information will be worse than it is now.
- Switching to JASC code, as currently written, creates historical data trending problems (FAA would have benefited with industry input).

During the last ATSRAC meeting, the FAA implied the JASC code would be optional.

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What about the unique numbering system?

- The industry needs to know how the unique numbering system will be determined . . . unique to the SDR System, or unique to each submitter?
- If a repair station submits an original "open" report, under whose number will the air carrier submit the supplementary?
- Without guidance materials, this will make the process more complicated.

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- The "effective date" is only a month away . . .
- The FAA has promised guidance materials to clarify this Rule.
- If the language of the Rule was clarified (as per our Comments), we would need ninety (90) days after receipt of the guidance materials.

An Advisory Circular and a parallel Inspector's Handbook Bulletin must be released together!

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Industry requests withdrawal of the SDR Final Rule until the following are accomplished:

- Rewrite Final Rule so that operational and structural interpretations are clear (see examples previously submitted).
- Remove the use of the JASC code from the rule and add it to the guidance material.
- Identify how the unique numbering system is to be applied/administered, and notify the industry.
- Release the associated draft Advisory Circular and Handbook Bulletin for comment.

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**Docket Number FAA-2000-7952**  
**Service Difficulty Reports - Final Rule**

**If clarification is only provided by the guidance material:**

**We ask that you set the new effective date at one (1) year from the current effective date.**

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<b>RULE LANGUAGE</b> <i>Service difficulty reports (operational)</i>	<b>INDUSTRY CONCERNS/EXAMPLES</b>	<b>FAA RESPONSE</b>
<p>(a) Each certificate holder shall report the occurrence or detection of each <u>failure, malfunction, or defect</u> concerning--</p>	<p>The final rule does not limit reports to those occurring during "operation" of the aircraft as indicated in the section heading. Conditions described could happen during maintenance "operations." (Please refer to specific concerns.)</p> <p>Federal Aviation Regulations, Part 1.1 defines "Operate" as "[w]ith respect to aircraft, means use, cause to use or authorize to use, aircraft for the purpose...of air navigation, including the piloting of aircraft...." The rule introduces the terms "flight" operations and "ground" operations. These terms are not defined in Part 1.1. Where do we find the definition? Are we talking about "operations" that occurring during "flight time" (as defined in the FARs)?</p> <p>"Failure" as defined by the New World Dictionary - the act, state, or fact of failing, specifically: a) a falling short; b) a losing of power or strength; c) a breakdown in operation or function; d) neglect or omission; e) a not succeeding in doing or becoming; or, f) a becoming bankrupt.</p> <p>"Malfunction" as defined by the New World Dictionary - to fail to function as it should.</p> <p>"Defect" as defined by the New World Dictionary - (1) lack of something necessary for completeness; deficiency; shortcoming or (2) an imperfection or weakness; fault; flaw; blemish.</p> <p>In the preamble to the rule, the FAA states, "<i>The SDR program does not require the reporting of non-routine work tasks. The program only requires the reporting of defects when found.</i>" This is a contradiction. Non-routine work tasks ARE GENERATED AS A RESULT of failures, malfunctions, or defects discovered during maintenance. The operator's approved maintenance program is designed to identify and correct these discrepancies. This program is doing what it was intended to do. On the surface, it appears that the FAA has basically mandated the reporting of EVERY non-routine work task. The wording leaves the operator no option but to err on the side of caution and report every failure, malfunction, or defect. How will the operator distinguish between reportable and non-reportable events? What will the FAA's guidance be and when will it be issued?</p>	

<b>RULE LANGUAGE</b> <i>Service difficulty reports (operational)</i>	<b>INDUSTRY CONCERNS/EXAMPLES</b>	<b>FAA RESPONSE</b>
<p>(1) Any fire and, when monitored by a related fire-warning system, whether the fire-warning system functioned properly;</p>	<p>While we are all concerned about fires around aircraft, we can envision situations where a fire might occur during maintenance, subsequent to an engine change, where a fuel line may have been inadvertently been left unsecured. The purpose of test operations, prior to approval for return to service, is to identify and correct these maintenance induced problems. Does the FAA want the incidents that happen during "maintenance operations" reported? Is there any useful purpose in reporting these incidents?</p>	
<p>(2) Any false warning of fire or smoke;</p>	<p>We can imagine situations during aircraft maintenance or cleaning, where the mist emitted by an aerosol cleaning products could be released in a lavatory, triggering a false fire warning. Strictly interpreting the rule, this is a reportable incident. Is there any practical utility to be gained from reporting these events?</p>	
<p>(3) An engine exhaust system that causes damage to the engine, adjacent structure, equipment, or components;</p>	<p>Ground service equipment damaged by a jet blast created during maintenance operations (as we define it) or aircraft taxi would be reportable. Is there any practical utility to be gained by reporting these events?</p>	
<p>(4) An aircraft component that causes the accumulation or circulation of smoke, vapor, or toxic or noxious fumes;</p>	<p>Since this is not limited to "during flight" as in the current rule, every accumulation of smoke, vapor, or toxic or noxious fumes "anywhere" in the proximity of the aircraft during maintenance is reportable. By not limiting it to "the crew compartment or passenger cabin during flight", the possibilities are infinite. It also does not discriminate about accumulations, which occur during the process of troubleshooting and corrective action. Are reporting such instances necessary?</p>	
<p>(5) Any engine flameout or shutdown during flight or ground operations;</p>	<p>What are "ground" operations? Depending upon the answer, and as was pointed out during an earlier comment period, ground "maintenance" operations may take place during unstable wind conditions. A sudden change in the direction of prevailing wind can cause an engine to stall or flameout as a result of inadequate airflow. We see no practical utility to reporting these events. Also, during maintenance troubleshooting, a faulty component (fuel control for example) could cause an engine to flameout. The rule does not relieve the operator from reporting multiple events during troubleshooting, regardless of what common sense tells us. Does the FAA want events that take place during maintenance operations reported? Does the FAA want multiple events reported? Does it provide useful information?</p>	

<b>RULE LANGUAGE</b> <i>Service difficulty reports (operational)</i>	<b>INDUSTRY CONCERNS/EXAMPLES</b>	<b>FAA RESPONSE</b>
(6) A propeller feathering system or ability of the system to control overspeed;	Does the FAA want these instances reported if they happen due to a mistake made by personnel maintenance?	
(7) A fuel or fuel-dumping system that affects fuel flow or causes hazardous leakage;	Fuel systems typically include a surge bay, designed to vent vapors (and fuel if necessary) to prevent structural damage to the aircraft in the event of heat expansion. It is entirely plausible that in accordance with system design, an uncontained fuel spill could occur on the ramp. Is there any useful utility in reporting this?	
(8) A landing gear extension or retraction, or the opening or closing of landing gear doors during flight;		
(9) Any brake system component that results in any detectable loss of brake actuating force when the aircraft is in motion on the ground;	Our key concern is the addition of the word "detectable." By the very nature of the word, it requires subjective comparison. This paragraph was previously and widely interpreted as "did the brakes fail to stop the aircraft." By adding the word detectable, the suggestion of any deterioration of braking force detected by a flight crew will require a report. The brake system may still be serviceable. Is this something we must report?	
(10) Any aircraft component or system that results in a rejected takeoff after initiation of the takeoff roll or the taking of emergency actions as defined by the Aircraft Flight Manual or Pilot's Operating Handbook;	The sounding of a takeoff warning horn, that causes the rejection of a takeoff, may be caused by a misapplied setting to trim controls. In the past, many Aviation Safety Inspectors for Operations have agreed that since the incident was due to the flight crew, not the aircraft, it would not be interpreted as a failure or malfunction. The new rule does not appear to give the operator that latitude. Is this something the FAA wants reported?	
(11) Any emergency evacuation system or component including any exit door, passenger emergency evacuation lighting system, or evacuation equipment found to be defective or that fails to perform the intended function during an actual emergency or during training, testing, maintenance, demonstrations, or inadvertent deployments; and,	Failure to properly reconnect emergency floor lighting strips can occur during the scheduled maintenance inspection requiring the removal of floor panels. If a subsequent test of the system prior to approving the maintenance for return to service reveals a failure, it appears to be reportable. Is this something the FAA wants reported?	
(12) Autothrottle, autoflight, or flight control systems, or components of these systems.	The rule does not limit the reports to those anticipated by the maintenance manual. Anomalies in the automated test and detection "components" of an autoflight system will have to be reported. Any failure or malfunction of an	



RULE LANGUAGE Service difficulty reports (operational)	INDUSTRY CONCERNS/EXAMPLES	FAA RESPONSE
	<p><u>Continued</u> autoflight system with a "Built In Test Equipment" (BITE) component that did not detect the failure or malfunction of the autoflight system would require two reports: one for the autoflight "failure, malfunction or defect" and one for the BITE's "failure, malfunction or defect."</p> <p>Additionally, there are certain anomalies that may occur in the autoflight system which do not effect its operation and for which there is MEL relief. Since no clear and present danger from such an event exists and since the fleet MMEL committee clearly contemplated the occurrence, is it necessary to report such an event?</p>	
(e) The certificate holder shall submit the reports required by this section on a form or in another format acceptable to the Administrator. The reports shall include the following information:		
(1) The manufacturer, model, and serial number of the aircraft, engine, or propeller;		
(2) The registration of the aircraft		
(3) The operator designator;	This appears to be superfluous information since the "unique identifier" would reveal the operator if that information were necessary. Does this indicate that operators will be monitored on their reporting status?	
(4) The date on which the failure, malfunction, or defect was discovered;		
(5) The stage of flight or ground operation during which the failure, malfunction, or defect was discovered;	What is the definition of "ground operations?"	
(6) The nature of the failure, malfunction, or defect;		
(7) The applicable Joint Aircraft System/Component Code;	We are still concerned about the use of the JASC. Its use will require training of records personnel preparing SDRs and unless the operator's support staff is going to translate all discrepancies from the ATA Specification 100 code to the JASC, it will require the training of its entire maintenance staff. Additionally, if the operator chooses to allow a repair station to submit the SDRs, that entity will have to continue to report the maintenance discrepancies to the air carrier under the ATA code. We contend that the (continued) creative use of the industry standard ATA 100 code, and its expansion if necessary, would have avoided this requirement. The clarity of the information hoped to be gained,	

RULE LANGUAGE Service difficulty reports (operational)	INDUSTRY CONCERNS/EXAMPLES	FAA RESPONSE
	<u>Continued</u> will be lost in the translation. Will the FAA accept an "initial" report under the ATA code until such time as the operator has the system in place to effectively use the JASC?	
(8) The total cycles, if applicable, and total time of the aircraft, aircraft engine, propeller or component;	Many parts are not tracked with regard to the total time of the aircraft, aircraft engine, propeller or component. The way the rule is worded and punctuated, total cycles are optional if applicable and times are not.	
(9) The manufacturer, manufacturer part number, part name, serial number, and location of the component that failed, malfunctioned, or was defective, if applicable;	Many components and their sub-assemblies are not readily tracked by part number, much less serial number, in the current air carrier recordkeeping systems. The location of the part when the discrepancy is discovered may well be the maintenance shop. The location of the part is self-evident by the part number and aviation product information. This requirement clearly indicates that the FAA wants all maintenance information reported under the SDR. Is this truly the intent of this rule?	
(10) The manufacturer, manufacturer part number, part name, serial number, and location of the part that failed, malfunctioned, or was defective, if applicable;	Same comment as above.	
(11) The precautionary or emergency action taken;	Unless an operator's Safety Program requires the submission of a detailed account of irregularities; it is entirely plausible that this information may not be available until the crew has been interviewed. Will the FAA accept N/A in this or any other element that "shall" be reported?	
(12) Other information necessary for a more complete analysis of the cause of the failure, malfunction, or defect, including available information pertaining to type design of the major component and the time since the last maintenance overhaul, repair, or inspection; and,	We presume that the manufacturer would perform the complete analysis of information pertaining to type design. That being the case, the operator would likely have to maintain an "open" file on the service difficulty for an indeterminate period of time until that information was forthcoming (if ever). Why did the FAA not use the verbiage of Part 21.3 (e)(3), which says, "Shall include as much of the following information as is available and applicable"? To do so would have precluded the operator from maintaining in an open status reports for which items such as total cycles/times are not tracked.	
(13) A unique control number for the occurrence, in a form acceptable to the Administrator.	No explanation of how the "unique control number" protocol would be established has been provided. Will a unique prefix or suffix to a	

RULE LANGUAGE Service difficulty reports (operational)	INDUSTRY CONCERNS/EXAMPLES	FAA RESPONSE
	<p><u>Continued</u></p> <p>numbering system be assigned? Otherwise, there is nothing to prevent the inadvertent duplication of numbering systems from carrier to carrier. The development and instruction of such a system will require additional FAA resources not detailed in the time and cost estimates submitted by the FAA in support of this rule. How and when does the FAA plan on establishing the protocol? The air carrier must have time to develop a system prior to the implementation date of the rule.</p>	

<b>RULE LANGUAGE</b> <b>Service Difficulty Reports (structural)</b>	<b>INDUSTRY CONCERNS/EXAMPLES</b>	<b>FAA RESPONSE</b>
<p>(a) Each certificate holder shall report the occurrence or detection of each <u>failure or defect</u> related to –</p>	<p>The rule language does not limit the reporting to aircraft structures; rather it addresses any occurrence or detection of EACH failure or defect relating to the enumerated items. This would apply to ANY occurrence or detection on ANY aircraft, engine, propeller, component or part.</p> <p>“Failure” as defined by the New World Dictionary – The act, state, or fact of failing, specifically: a) a falling short; b) a losing of power or strength; c) a breakdown in operation or function; d) neglect or omission; e) a not succeeding in doing or becoming; or, f) a becoming bankrupt.</p> <p>“Defect” as defined by the New World Dictionary – (1) lack of something necessary for completeness; deficiency; shortcoming or (2) an imperfection or weakness; fault; flaw; blemish.</p> <p>Conclusion: Anything found that includes the conditions found in (1) through (4) that renders the aircraft, engine, propeller, component or part unairworthy.</p> <p>In the preamble to the rule, the FAA states, “<i>The SDR program does not require the reporting of non-routine work tasks. The program only requires the reporting of defects when found.</i>” This is a contradiction. Non-routine work tasks ARE GENERATED AS A RESULT of failures, malfunctions, or defects discovered during maintenance. The operator’s approved maintenance program is designed to identify and correct these discrepancies. This program is doing what it was intended to do. On the surface, it appears that the FAA has basically mandated the reporting of EVERY non-routine work task. The wording leaves the operator no option but to err on the side of caution and report every failure, malfunction, or defect. How will the operator distinguish between reportable and non-reportable events? What will the FAA’s guidance be and when will it be issued?</p>	
<p>(1) Corrosion, cracks, or disbonding that requires replacement of the affected part;</p>	<p>The report is required on every failed or defective part that has corrosion, a crack or disbonding removed for maintenance from an aircraft, engine, propeller or component.</p> <p>The report is required whether or not the maintenance manual covers the failure or defect.</p>	

<b>RULE LANGUAGE</b> <b>Service Difficulty Reports (structural)</b>	<b>INDUSTRY CONCERNS/EXAMPLES</b>	<b>FAA RESPONSE</b>
	<p><u>Continued</u></p> <p><i>Aircraft examples:</i> (1) Removal of a leading edge that has disbonding. The manufacturer clearly contemplated this phenomenon with a repair procedures found in the maintenance manual that requires it be removed from the wing. (2) Laminated floor panels are removed during the accomplishment of scheduled maintenance checks. Due to their location in high traffic areas, they become delaminated. This condition is contemplated by the manufacturer who developed a standard repair found in the maintenance manual. This condition does not pose a safety hazard. (3) Radomes are frequently removed for delamination cause by perpetual exposure to harsh environmental conditions, contemplated during design approval. They are removed for maintenance in accordance with the manufacturer's ICAs. Are these to be reported?</p> <p><i>Engine example:</i> Turbine vanes removed and replaced during routine engine maintenance. There are 40 to 100 vanes per stage, with 4 to 9 stages per engine and the cracks can be found in various areas. The condition was anticipated during certification and the repair is covered by the manufacturer's maintenance manual. Are these to be reported?</p> <p><i>Propeller examples:</i> (1) The manufacturers of composite propeller blades anticipated the delamination of this units and accordingly have designed a testing and repair scheme found in the manufacturer's maintenance manual that requires to removal of the blade. (2) Are these to be reported?</p> <p><i>Component examples:</i> Components removed from the aircraft, engine or propeller, for routine maintenance; if the component has a detectable crack, must the air carrier report the replacement of the component? Additionally, when the component is undergoing routine maintenance in a repair station or in the air carrier's own shop, do cracks found in piece parts requiring replacement of the piece part have to be reported?</p>	
<p>(2) Corrosion, cracks, or disbonding that requires rework or blendout because the corrosion, cracks, or disbonding exceeds the manufacturer's established allowable damage limits;</p>	<p>Where are the manufacturer's allowable damage limits found? In the manufacturer's maintenance manual or Instructions for Continued Airworthiness? Is an airline engineering order supported by a manufacturer's DER-approved repair scheme "within the manufacturer's established allowable limits?"</p>	

<b>RULE LANGUAGE</b> <b>Service Difficulty Reports (structural)</b>	<b>INDUSTRY CONCERNS/EXAMPLES</b>	<b>FAA RESPONSE</b>
<p>(3) Cracks, fractures, or disbonding in a composite structure that the equipment manufacturer has designated as a primary structure or a principal structural element; or</p>	<p>Equipment manufacturer's do not designate primary structures or principal structural elements, although the type design holder may during the certification process. Where does the industry find the designation?</p>	
<p>(4) Repairs made in accordance with approved data not contained in the manufacturer's maintenance manual.</p>	<p>The rule does not include data contained in Instructions for Continued Airworthiness. Although a "minor" oversight, the regulations should be consistent. This would include every DER-approved repair, not included in the manufacturer's maintenance manual or Instructions for Continued Airworthiness. Approved repairs are also generated by the type certificate holder under subpart D to Part 21. These may or may not be included in the maintenance manual or ICAs at a later date. d) Also, since Service Bulletins are not considered part of the maintenance manual or ICAs, it would include repairs performed in accordance with those documents and Airworthiness Directives promulgated by the FAA for the purpose of repairing an already recognized failure or defect. Are repairs done in accordance with Service Bulletins and ADs required to be reported?</p>	
<p>(d) The certificate holder shall submit the reports required by this section on a form or in another format acceptable to the Administrator. The reports shall include the following information:</p>	<p>The stated information <u>has to be reported</u> (the reports <u>shall include</u>), whether or not it is reasonably available and whether or not it has already been reported.</p>	
<p>(1) The manufacturer, model, serial number, and registration number of the aircraft;</p>	<p>If the report is on a component, the repair organization will not have this information and the air carrier will have to track the component back through the removal process. If the component was purchased by the air carrier and sent for repair, the air carrier will not be able to provide this information at all. This will result in an "open" report that may never be closed. Will this be acceptable to the Administrator?</p>	
<p>(2) The operator designator;</p>		
<p>(3) The date on which the failure or defect was discovered;</p>		
<p>(4) The stage of ground operation during which the failure or defect was discovered;</p>	<p>What if the failure or defect is found during maintenance? What is the definition of ground operations?</p>	
<p>(5) The part name, part condition, and location of the failure or defect;</p>	<p>If a component is sent to a repair station, that entity would be able to make an initial report, however, almost all of the rest of the information will have to be supplied by the air carrier. The supplemental information most likely will not be supplied within the time required by the regulation. Will this be acceptable to the Administrator?</p>	

<b>RULE LANGUAGE</b> Service Difficulty Reports (structural)	<b>INDUSTRY CONCERNS/EXAMPLES</b>	<b>FAA RESPONSE</b>
(6) The applicable Joint Aircraft System/Component Code;	This is an onerous requirement. Both repair stations and air carriers will have to (1) obtain the Code; (2) incorporate the Code into computer systems and training requirements; and, (3) report under both the ATA Code and this code. The time required for such incorporation will exceed the implementation date of the regulation. How will the FAA accept this fact without changing the rule?	
(7) The total cycles, if applicable, and total time on the aircraft;	This information will not be available if the air carrier cannot track the component back to the aircraft from which the part was removed. For example, if a part associated with an engine has a repair performed that was approved by a DER, it may be possible to track that part back to the engine, but it may be impossible to track it back to the aircraft. Is this acceptable to the Administrator?	
(8) Other information necessary for a more complete analysis of the cause of the failure or defect, including corrosion classification, if applicable, or crack length and available information pertaining to the type designation of the major component and the time since the last maintenance overhaul, repair, or inspection; and	This open-ended requirement will prove to be extremely onerous. Of particular concern is providing the time since the last maintenance action for on-condition components. Will the operators have to develop systems for tracking the time since the last maintenance action on all components and piece parts? Will the operator have to provide information that is not required under the recordkeeping rules today?	
(9) A unique control number for the occurrence, in a form acceptable to the Administrator.	Has the FAA developed the method by which a unique number will be issued? How will these systems be developed by the air carriers prior to the implementation date of the rule?	